Amendments to the Claims

Claim 1 (Currently Amended)

1. A method for the communication of message packets between nodes in a data processing system, said method comprising the steps of:

establishing a first set of communication parameters prior to message transmission time in a communications adapter connected to a first one of said nodes, said first set of communication parameters including a destination identifier;

establishing a second set of communication parameters prior to message transmission time in a communications adapter connected to a second one of said nodes, said second set of communication parameters including an entry which maps said destination identifier to an address in memory in said second node;

transmitting a message packet with header information linking said packet to said first and second set of communication parameters, whereby data in said packet is transferred directly from memory locations in said first node directly to memory locations in memory at said second node;

assembling packet headers in a communications adapter, [said method comprising the steps of:] by executing at least one script command stored in memory within said adapter to gather header information within an internal adapter buffer; and

executing at least one other script command stored in memory within said adapter to form completed packet headers from information gathered into said internal buffer.

Claim 2. (New Claim) The method of claim 1, further comprising the steps of:

prioritizing messages based on their intended destination such that tasks received by different nodes can be processed simultaneously; and

prioritizing messages intended for same nodes chronologically such that they can be processed in that order.

Claim 3 (New Claim) The method of claim 1, further comprising the step of processing said packet such that when said package arrives, it is assigned to a task.

Claim 4 (New Claim) The method of claim 3, further comprising the step of assigning each task to a channel based upon packet headers.

Claim 5 (New Claim) The method of claim 3, further comprising the step of determining if said channel has any other tasks assigned to it.

Claim 6 (New Claim) The method of claim 3, wherein if no other tasks are assigned to said channel, said packet is then dispatched and said channel is blocked until said task is completed and a signal is provided that a new task can be started.

Claim 7 (New Claim) A method for the communication of message packets between nodes in a data processing system, said method comprising the steps of:

establishing a first set of communication parameters prior to message transmission time in a communications adapter connected to a first one of said nodes, said first set of communication parameters including a destination identifier;

establishing a second set of communication parameters prior to message transmission time in a communications adapter connected to a second one of said nodes, said second set of communication parameters including an entry which maps said destination identifier to an address in memory in said second node;

transmitting a message packet with header information linking said packet to said first and second set of communication parameters, whereby data in said packet is transferred directly from memory locations in said first node directly to memory locations in memory at said second node;

prioritizing messages based on their intended destination such that tasks received by different nodes can be processed simultaneously; and

prioritizing messages intended for same nodes chronologically such that they can be processed in that order.

Claim 8 (New Claim) The method of claim 7, wherein said tasks intended for same node are queued chronologically.

Claim 9 (New Claim) The method of claim 8, comprising the step of providing signals from one task to another such that when one task completes its processing another queued task begins processing immediately.

Claim 10 (New Claim) The method of claim 9, wherein the signaling of one task signals to another task that is safe to start processing is provided under microcode control.

Claim 11 (New Claim) The method of claim 7, wherein a fencing mechanism is provided having a packet handling mechanism.

Claim 12 (New Claim) The method of claim 11, further comprising the step of providing a metering of passage of packets through said fencing mechanism at controlled points in time.

Claim 13 (New Claim) The method of claim 12, wherein said metering is provided for a specific subset of a total channel space.

Claim 14 (New Claim) A method for the communication of message packets from a first node in a data processing system to a plurality of nodes in said data processing system, said method comprising the steps of:

establishing a first set of communication parameters, prior to message packet transmission time, in a communications adapter connected to said first node, said first set of communication parameters including an indication that a plurality of nodes is targeted for receipt of said message packet, said first set of communication parameters also including a destination identifier;

establishing a second set of communication parameters, prior to message transmission time in communication adapters connected to said plurality of nodes, said second set of communication parameters including an entry which maps said destination identifier to an address in memory at said plurality of nodes;

transmitting a message packet, with header information linking said packet to said first and second set of communication parameters, from said adapter connected to said plurality of nodes, using said first set of communication parameters;

recognizing, at adapters connected to said respective ones of said plurality of nodes, which receive message packets from said adapter connected to said first node, that said message packet is targeted for receipt by a plurality of nodes, whereby data in said packet is transferred directly from memory locations in said first node directly to memory locations in memory at said plurality of nodes; and

transmitting a message packet with header information linking said packet to a first and second set of communication parameters, whereby data in said packet is transferred directly from memory locations associated with one node directly to memory locations associated with another node.

Claim 15. (New Claim) The method of claim 14, wherein a plurality of channels is provided and associated with one or a plurality of nodes.

Claim 16.(New Claim) The method of claim 15, wherein one or more tasks can be associated with each of said channels.

Claim 17. (New Claim) The method of claim 14, wherein at least one channel is provided, said channel being associated with at least one node and one task.

Claim 18.(New Claim) The method of claim 15, wherein a specialized register is provided for at least one of said channels such that through said register, said channel can only be accessed by one task associated with said specific channel.

Claim 19. (New Claim) The method of claim 18, wherein said register is a channel state register.

Claim 20.(New Claim) The method of claim 17, wherein a specialized register is provided for each channel such that through said channel can be accessed through said register by only one task at one time that is associated with said channel.

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